

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

**ERICSSON INC., and
TELEFONAKTIEBOLAGET LM
ERICSSON,**

Plaintiffs and Counter-Defendants,

v.

**TCL COMMUNICATION
TECHNOLOGY HOLDINGS LTD.,
TCT MOBILE LIMITED, and
TCT MOBILE (US), INC.,**

Defendants and Counter-Claimants.

Case No. 2:15-cv-11

**DECLARATION OF SAM MALEK IN
SUPPORT OF DEFENDANTS'
RESPONSIVE CLAIM
CONSTRUCTION BRIEF FOR
ERICSSON'S ASSERTED PATENTS**

JURY TRIAL DEMANDED

I, Sam Malek, declare:

I. INTRODUCTION

1. My name is Sam Malek. I am currently an Associate Professor in the School of Information and Computer Sciences at the University of California, Irvine. I also serve as a consultant on matters related to computer technology on a part-time basis.

2. I have been retained by TCL Communication Technology Holdings LTD.; TCT Mobile Limited, and TCT Mobile (US), Inc. (“Defendants” or “TCL”) to provide my expert opinions regarding U.S. Patent No. 7,149,510 (“the ’510 patent”). More specifically, I have been asked to give my opinion about the meanings of certain terms of the ’510 patent claims. I submit this declaration in support of TCL’s claim construction reply brief.

3. I am being compensated for my work in this matter at a rate of \$400 per hour. I am also reimbursed for my reasonable expenses incurred in connection with my work on this proceeding. My compensation in no way depends upon the outcome of this proceeding.

II. EXPERT QUALIFICATIONS AND CREDENTIALS

4. My qualifications for presenting the opinions in this declaration are set forth in my curriculum vitae, a copy of which is attached as an Appendix A to this declaration.

5. I have more than 17 years of experience in the general area of computer and software technology in a variety of roles, including as a software engineer, software architect, and programmer at a variety of companies, as well as a researcher and professor at several universities.

6. In 2000, I earned a B.S. degree in Information and Computer Science from The University of California, Irvine. In 2004, I received the M.S. degree in Computer Science from the University of Southern California (“USC”) and then in 2007, I received the Ph.D. degree in

Computer Science—from USC. My PhD dissertation was in the general area of distributed software systems, and specifically resulted in new algorithms and an architectural middleware for effective deployment of a component-based software system among a distributed set of computing nodes. I have received numerous awards for my scientific contributions to the field of Computer Science, including the National Science Foundation CAREER award in 2013, Mason’s Emerging Researcher/Scholar/Creator award in 2013, and GMU Computer Science Department Outstanding Faculty Research award in 2011. I am a member of the Association for Computing Machinery (“ACM”), ACM Special Interest Group on Software Engineering (“SIGSOFT”), and the Institute of Electrical and Electronics Engineers (“IEEE”).

7. I am an Associate Professor of Computer Science in the School of Information and Computer Sciences at the University of California, Irvine (“UCI”). Before UCI, I was an Associate Professor at George Mason University (“GMU”), where I was also the director of the Software Design and Analysis Laboratory at GMU. As the director of Software Design and Analysis Laboratory, I served as the principal investigator of several federally funded research projects totaling more than several million dollars and led a team of approximately ten investigators. I formerly worked as a researcher at USC.

8. My research is in the field of software engineering, and to date my focus has spanned the areas of software design and architecture, distributed and embedded systems, smartphone and mobile computing, internet and web technologies, middleware, service oriented computing, autonomic computing, and software dependability and security. My research has produced more than 75 manuscripts that have been published in peer-reviewed scientific conferences and journals. These publications have been highly cited (more than 2,600 times according to scholar.google.com). I was recently ranked 23rd globally by a recent Microsoft

ranking of software engineering researchers for their impact on the field in the past 5 years (academic.research.microsoft.com).

9. A substantial focus of my research over the past decade has been on the design and construction of middleware solutions (containers) for the construction of distributed software, including services such as caching and security that such middleware solutions would need to provide for the applications developed on top of them. Most notably, my research in this area has resulted in a middleware platform, entitled Prism-MW, which has been adapted and adopted for use by several organizations, including Bosch and NASA's Jet Propulsion Lab, in the design of their applications. I also have extensive research experience and publication record on the security of mobile platforms, specifically Android. As an example, together with my students, we have developed a tool called COVERT, which enables detection of security vulnerabilities that arise due to the installation of multiple apps on the same device. This tool is currently being adapted for use by government agencies that have funded the research.

10. I also have several years of experience as a software engineer, software architect, and programmer at a variety of companies, namely the Boeing Company, PricewaterhouseCoopers Consulting (later acquired by International Business Machines ("IBM") Corporation), FieldCentrix, and Neural Computing Systems Lab. During my tenure in the industry, I gained professional experience in the design, development, and management of large-scale software engineering efforts, and in particular developed and utilized security facilities provided in modern object-oriented languages, including access control mechanisms.

11. I taught software engineering and computer science courses on a regular basis at the B.S., M.S., and Ph.D. levels at GMU. Specifically, I taught a Distributed Software Engineering course on a regular basis, as part of which I cover topics related to middleware,

mobile computing, and software security principles such as access control. I also regularly taught Java programming topics in the various courses that I taught at both undergraduate and graduate levels.

12. I have been a frequent speaker at scientific conferences, symposia, workshops, and gatherings of software engineering academics and professionals. I have served as chair, committee member, and reviewer for numerous software engineering journals, magazines, and conferences. I am currently an associate editor of the IEEE Transactions on Software Engineering and the Springer Journal of Computing.

13. Additional details about my qualifications are listed on my curriculum vitae attached as Exhibit A hereto.

III. BASIS FOR OPINIONS AND MATERIALS REVIEWED

14. The opinions set forth in my declaration are based on my personal knowledge gained from my education, personal experience, and on the review of the documents and information described in this declaration.

15. In preparation of this declaration, I have studied:

Exhibit No.	Description	Date	Identifier
1	United States Patent No. 7,149,510 to Hansson et al.	Sept. 19, 2003 (Filing Date)	'510 Patent
2	File History for the '510 Patent	n/a	'510 Patent File History
3	IBM, <u>Dictionary of IBM & Computing Terminology</u> , IBM.com, http://www-03.ibm.com/ibm/history/documents/pdf/glossary.pdf	Last Visited May 12, 2015	IBM Dictionary
4	Merriam-Webster's Collegiate Dictionary, Eleventh Edition, 2007	2007	Merriam-Websters Dictionary
5	Andrew S. Tanenbaum & Maarten Van Steen, <u>Distributed Systems: Principles and Paradigms</u>	2d ed. 2006	Tanenbaum

Exhibit No.	Description	Date	Identifier
6	Abraham Silberschatz, <u>Operating System Concepts</u>	2002	Silberschatz

IV. LEGAL STANDARDS APPLIED

16. In preparing and expressing my opinions and considering the subject matter of the '510 patent, I am relying on certain basic legal principles that counsel have explained to me.

A. Claim Construction in the District Court Proceeding

17. I understand that the first step in analyzing an asserted claim is for the claim to be properly construed and that the second step is determining whether the accused systems or methods infringe or invalidate the claims, as properly construed.

18. I understand that each challenged claim must be supported by the specification and the file history but generally should not be limited to a preferred embodiment described in the specification. I am informed that claim terms be given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. I also understand that any special definition for a claim term must be set forth in the specification with "reasonable clarity, deliberateness, and precision."

19. I provide my opinions in this report based on the guidelines set forth above.

V. THE PERSON OF ORDINARY SKILL IN THE ART

20. I have reviewed the '510 patent, the prior art references cited in the '510 patent, as well as the prior art documents referenced above. Based on this review and my knowledge of access control mechanisms for mobile software, it is my opinion that a person of ordinary skill in the art ("POSA") of the '510 patent as of September 23, 2002, would have had a bachelor's degree in computer engineering, computer science, or a related field, and one to two years of

experience with mobile software code security architecture or equivalent education and experience.

21. In my opinion, such a person would be capable of reading and understanding the scientific and engineering principles applicable to the field of the '510 patent disclosure, including the information discussed in the "Technology Background" section below.

VI. CLAIM CONSTRUCTION

A. "a software services component" (Claims 1, 10, 11)

22. It is my opinion that the interpretation of "a software services component" in light of the specification and the claim language is "*a software component allowing applications to provide services to a user.*"

23. The specification of the '510 patent describes the "software services component" as including "a plurality of well-structured functional software units for providing services that are offered to users via the interface component." Ex. 1 at 4:21–24. The '510 patent further states that the software services component includes hardware device drivers. *Id.* at 4:67–5:2, Fig. 2. As illustrated in Figure 2 of the '510 patent, the "software component 22 each include hardware driver software 60-68 to operate the hardware units associated with each [software] stack." *Id.* at 4:67–5:2.

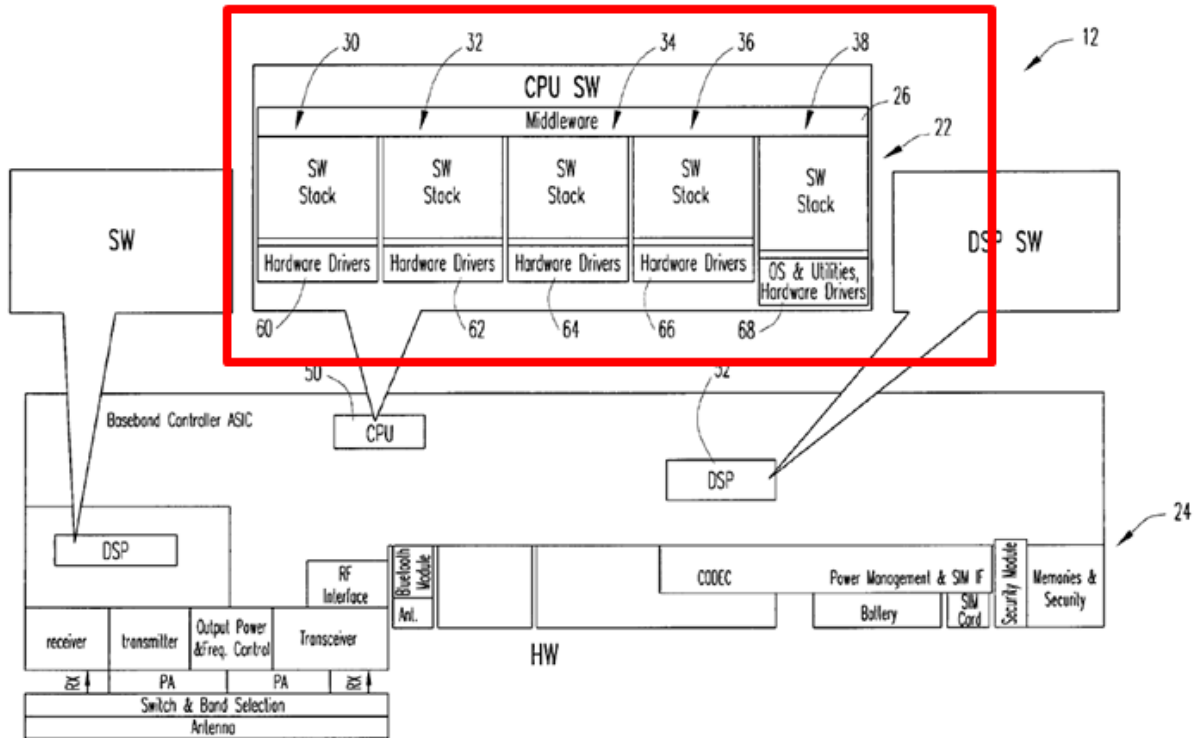


FIG. 2

24. Based on the specification of the '510 patent, the “software services component” constitutes the underlying code used by applications to allow applications to interact with the resources of the platform to provide services to the user. Ex. 1 at 2:18–24, 4:27–32, 6:28–36, Fig. 1. Moreover, Figure 2 illustrates that the software services component is part of the controlling software “executing in a main CPU 50.” *Id.* at Fig. 2.

25. In view of the claim language and grammar, it is clear that the term is being used in the claims of the '510 patent to indicate the software portion of the platform. As will be explained in more detail below, all of the elements of the claims concern software aspects of the exemplary “mobile terminal platform assembly” discussed in the '510 patent.

26. Ericsson’s proposed construction improperly characterizes the explicit language of the '510 patent specification. To support the proposed construction, Ericsson relies on the following characterization from its Expert Report:

The specification provides that *the interface includes a software services component* that includes a plurality of functional software units that correspond to hardware units, *each stack of hardware and software providing a service to the user*. See '510 patent at 4:19-32. (Jones Decl. at ¶ 43 (emphasis added).)

However, the '510 explicitly states that the “[s]oftware services component 22 includes a plurality of well-structured functional software units for providing services *that are offered to users via the interface component 26*.” Ex. 1 at 4:21-24 (emphasis added). Ericsson excludes the emphasized portion of the cited portion of the '510 patent, which indicates that the software services component and the interface component are separate entities. See also, Ex. 1 at 4:19-21 (“Mobile terminal platform assembly 12 includes a software services component 22, a hardware component 24, and an interface component 26.”); cl. 1.

27. Moreover, Ericsson relies on the assertion that the term “functional software units” has a plain and ordinary meaning to a POSA at the time in view of the specification. (Ericsson’s Brief at p. 4 (citing Jones Decl. at ¶ 43).) However, the term “functional software units” is not a technical term with a plain or ordinary meaning to a POSA. Under Ericsson’s construction, the software services component could be any software of the platform that, alone or in combination, performs some function. Further, by improperly construing the software services component as being part of the interface component, Ericsson’s construction injects ambiguity as to who or what constitutes a “user” to which the “functional software units” allegedly provide services. Under Ericsson’s construction, an end user could directly access the software services component of the platform, which runs counter to the explicitly stated purpose of the interface component. See Ex. 1 at 4:33-40 (“The interface component 26 . . . *isolates the*

mobile terminal platform assembly 12 from the applications 14 using the assembly 12 via the interfaces[.]”).

B. “an interception module for receiving a request from the requesting application domain software to access the software services component” (Claims 1, 10, 11)

28. It is my opinion that the interpretation of “an interception module for receiving a request from the requesting application domain software to access the software services component” in light of the specification and the claim language is “*software responsible for receiving a request to access the software services component from the application domain software and passing the request to the decision entity.*”

29. The specification of the ’510 patent clearly supports TCL’s proposed construction. The ’510 patent states that “[t]he [interception module] 223 intercepts non-native application service requests from the EXE environment to the native platform services . . . and calls on the [security access manager] 518 to grant access.” Ex. 1 at 7:48–52. Moreover, Figure 2 illustrates that the interception module resides within the “CPU [software].” *Id.* at Fig. 2.

30. A POSA at the time of the alleged invention of the ’510 patent would have understood that in order for software to perform any function—e.g., receive or intercept—that software must be *invoked and executed* within the system. Software by itself is nothing more than data structures comprising ones and zeros, which are stored in memory. A POSA would have appreciated that software designed to intercept a request must first be invoked from its storage file or location before the programmed functionality may be realized.

31. The prosecution history of the ’510 patent supports my interpretation of the “interception module.” As originally filed, the ’510 Patent included claims identifying the “decision entity” as being either the security access manager (originally filed claims 2 and 37) *or* the interception module (originally filed claims 13 and 36). (Ex. 2 at p. 29, 31, 37.) In the July

27, 2005 Office Action, the Office rejected the originally filed claims, but identified that originally filed claim 2-9, 12, and 37 would be allowable if claims 2 and 37 were rewritten in independent form. (*Id.* at p. 61 (claims 3-9 depended from claim 2).) Specifically, the Office state that the prior art of record did not disclose “wherein the decision entity is a security access manager[.]” *Id.* In response, Applicant cancelled all the rejected claims for which allowable subject matter was not identified, including claims 13 and 36. (*Id.* at 66-70.) The Applicant explicitly amended claims 2 and 37 in accordance with the Office’s identification of allowable subject matter. *Id.* at pp. 66, 68. Accordingly, the Applicant disclaimed the second embodiment discussed above where the interception is capable of making local access decisions.

C. “identification of requesting application domain software” (Claims 2-3)

32. It is my opinion that the interpretation of “identification of requesting application domain software” in light of the specification and the claims is “*information indicative of an application that requests access to a software services component.*”

33. The specification of the ’510 patent does not provide an explicit definition of “identification of requesting application domain software,” but does use the term “identification” in reference to “an identification of *the requested native platform service* or services where the permissions must be changed.” Ex. 1 at 10:12–15. Regarding identifying the “requesting application domain software,” the ’510 patent merely describes that “the IM 223 intercepts the service request, which includes *an ID tag of the requesting non-native application* 250. *See id.* at 8:3–5. However, the ’510 patent provides no explicit definition. Therefore, “identification” must mean, at a minimum, “evidence of identity.” Ex. 4 at 4.

D. “decision cache” (Claim 4)

34. It is my opinion that the interpretation of “decision cache” in light of the specification is “*cache storing decisions associated with past service requests.*”

35. This construction is directly supported by the specification of the '510 patent. The specification states that the “decision cache 310 [is] for logging the most frequent and/or most recent service requests to find the permission decision associated with a particular service requests.” Ex. 1 at 9:28–31. In operation, the “first time the non-native application 250 makes a service request,” a full access check is performed, searching through the access records to determine if the requesting application has permission. *Id.* at 9:40–54. Only after this first full check is the decision cache populated with an access decision associated with that request. *Id.* at 9:54–56.

36. Further, this construction is consistent with the ordinary and customary meaning of the term “cache.” The concept of “caching” is a well-known technique in all aspects of computing for improving the speed of execution. Ex. 5 at 18. A “cache” is storage that, by definition, holds only copies of data to reduce the need to retrieve information from the original source of the data. *Id.*; Ex. 6 at 483. Caches can be implemented within a system to reduce access time between two components. Ex. 6 at 56, Fig. 2.6. Caches have also been used for years to help increase the efficiency and speed with which operating systems are capable of accessing information. Many operating systems utilize software caches to store the most recently used directory information to speed up directory operations. Ex. 6 at 430.

E. “a cache with the rules and policies of the decision entity” (Claim 11)


37. It is my opinion that the interpretation of “a cache with the rules and policies of the decision entity” in light of the specification is “*cache for storing permission also stored at the decision entity.*”

38. As an initial matter, an interception module including “a cache with the rules and policies of the decision entity” is not disclosed anywhere within the specification of the '510 patent. *See generally*, Ex. 1. The only discussion of the interception module holding any type of

data is with regards to the secondary embodiment, which was expressly disclaimed during prosecution. *See supra*, ¶ 36. However, even in that portion of the specification, the only “cache” the interception module is said to include is a decision cache, similar to the one described in detail with relation to the security access manager. *See* Ex. 1 at 9:64–2:1. This is further supported by the specification, which states that the interception module (IM) may maintain a decision cache which is updated from access records maintained by the security access manager (SAM). (‘510 Patent at 9:10-26.) The applicant during prosecution of the ‘510 patent equated the SAM to the decision entity. *See supra*, ¶ 36.

39. This proposed construction, however, is consistent with the ordinary and customary meaning of the term. As discussed above, a cache by definition only holds a copy of data. *See supra*, ¶ 38. Therefore, the interception module must obtain this information from some other entity. Moreover, claim 12 identifies the decision entity as “holding access and permission policies,” and claims 14-17 discuss methods by which the “rules and policies of the decision entity” in the cache may be updated in reliance on the decision entity. Ex. 1 at cls. 12, 14-17. A POSA reading the claim language in view of the customary meaning of the term “cache” would have understood that the “rules and policies” of the decision entity represents copies of the “access and permission policies” held by the decision entity. Accordingly, one of skill the art the time of the invention would have understood “a cache with the rules and policies of the decision entity” as “*a cache for storing permissions also stored at the decision entity.*”

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Executed this 28th day of August, 2015 at Irvine, California.


 Dr. Sam Malek, Ph.D.

APPENDIX A

SAM MALEK

Associate Professor
Informatics Department
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1. EDUCATION

Doctor of Philosophy Computer Science August 2007
 University of Southern California
 Dissertation: *A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture*

Master of Science Computer Science May 2004
 University of Southern California
 Emphasis on Software Engineering

Bachelor of Science Information and Computer Science December 2000
 University of California, Irvine

2. EMPLOYMENT HISTORY

July 2015 – present	Associate Professor Informatics Department, University of California, Irvine, CA
August 2013 – June 2015	Associate Professor Computer Science Department, George Mason University, Fairfax, VA
August 2007 – June 2015	Director Software Design and Analysis Laboratory, George Mason University, Fairfax, VA
August 2007 – June 2015	Faculty Member C4I Center, Volgenau School of Engineering, George Mason University, Fairfax, VA
August 2007 – July 2013	Assistant Professor Computer Science Department, George Mason University, Fairfax, VA
January 2003 – May 2007	Graduate Research Assistant Computer Science Department, University of Southern California, Los Angeles, CA
April 2005 – May 2007	Software Architect Boeing, Huntington Beach, CA
December 2000 – May 2002	Software Engineer PriceWaterhouseCoopers Consulting (IBM Global Business Services), Los Angeles, CA
August 1999 – Nov 2000	Software Engineer FieldCentrix, Irvine, CA
May 1998 – September 1999	Software Engineer Neural Computing Systems Labs, Irvine, CA

3. RESEARCH INTERESTS

- Software Engineering
- Software Architecture and Design
- Autonomic Software Systems
- Mobile, Embedded, and Pervasive Software Systems
- Software Dependability and Security
- Software Analysis and Testing

4. HONORS, AWARDS, AND STATISTICS

- H-index: 28
(scholar.google.com)
- Citations: 2,736
(scholar.google.com)
- Top Cited Authors in Software Engineering: 23rd in last 5 years
(academic.research.microsoft.com)
- Mason Emerging Researcher/Scholar/Creator Award 2013
George Mason University
- NSF CAREER Award 2013
- Outstanding Faculty Research Award 2011
Computer Science Department, George Mason University
- DARPA Computer Science Study Group 2011 – 2014
Selective early career award given annually to 12 academic panelists
- ACM Doctoral Dissertation Competition finalist 2007
Nominated by the University of Southern California
- Outstanding Graduate Student Researcher Award 2005
Computer Science Department, University of Southern California
- USC Viterbi School of Engineering Doctoral Fellow 2004 – 2008
- Magna Cum Laude 2000
- Cody Thorne Memorial Scholarship Award 1998
Awarded annually to the youngest and highest scholastic student of the year
- Dean's Honor List 1997 – 2000

5. RESEARCH GRANTS AND CONTRACTS

- G16. Air Force Office of Scientific Research (AFOSR)
“RASS: Resilient Autonomic Software Systems”
Duration: 1/8/2015 – 31/7/2016

- Co-PIs: Daniel A. Menasce (GMU), Hassan Gomaa (GMU)
Award Amount: \$1,016,641
- G15. Department of Homeland Security (DHS)
“Tools for Automated Detection and Assessment of Security Vulnerabilities in Mobile Applications”
Duration: 6/1/2014 – 5/31/2017
Sole PI
Award Amount: \$500,000
- G14. National Security Agency (NSA)
“Compositional Analysis of Android Apps for Security Vulnerabilities”
Duration: 9/5/2014 – 4/24/2015
Sole PI
Award Amount: \$200,000
- G13. National Security Agency (NSA)
“Science of Secure Frameworks”
Duration: 1/1/2014 – 12/31/2016
Sole PI at GMU
Prime Awardee: Carnegie Mellon University
Co-PIs: David Garlan (CMU), Jonathan Aldrich (CMU), Josh Sunshine (CMU), Marwan Abi Antoun (WSU)
GMU Award Amount: \$195,000
- G12. Defense Advanced Research Projects Agency (DARPA)
“Testing Privacy-Preserving Distributed Systems on DETERLab”
Duration: 11/1/2013 – 2/28/2015
Sole PI at GMU
Prime Awardee: University of Southern California
Co-PIs: Nenad Medvidovic (USC), Yuriy Brun (UMass)
Award Amount: \$300,000
GMU Award Amount: \$84,000
- G11. Office of the Director of National Intelligence (ODNI)
“Automated Approach for Detection and Mitigation of Security Vulnerabilities in Mobile Applications”
Duration: 7/8/2013 – 7/7/2016
Sole PI
Award Amount: \$359,372
- G10. Intelligence Advanced Research Projects Activity (IARPA)
“sTile: Private Computing in the Open”
Duration: 9/27/2013 – 9/26/2014
Sole PI at GMU
Prime Awardee: University of Southern California
Co-PIs: Nenad Medvidovic (USC), Yuriy Brun (UMass)
Award Amount: \$300,000
GMU Award Amount: \$84,000
- G9. National Science Foundation (NSF)

- “CAREER: A Mining-Based Approach for Consistent and Timely Adaptation of Component-Based Software”
Duration: 2/1/2013 – 1/31/2018
Sole PI
Award Amount: \$451,481
- G8. Army Research Office (ARO)
“Architecture-Based Self-Securing Systems”
Duration: 10/1/2012 – 9/30/2015
Sole PI at GMU
Prime Awardee: Carnegie Mellon University
Co-PI: David Garlan (CMU)
GMU Award Amount: \$200,000
- G7. Federal Bureau of Investigation (FBI)
“Automated Security Testing and Analysis of Android Applications”
Duration: 9/12/2012 – 9/11/2014
Sole PI
Award Amount: \$90,000
- G6. Defense Advanced Research Projects Agency (DARPA)
“Engineering Highly Adaptive Resilient Software Systems”
Duration: 4/25/2011 – 5/31/2016
Sole PI
Award Amount: \$949,065
- G5. National Science Foundation (NSF)
“Mining the Execution History of a Software System to Infer the Best Time for its Adaptation”
Duration: 2/1/2012 – 1/31/2014
Sole PI
Award Amount: \$80,000
- G4. Science Applications International Corporation (SAIC)
“COTS Very Small Computing Platforms - Tactical”
Duration: 1/1/2010 – 6/30/2011
Sole PI
Award Amount: \$224,470
- G3. Science Applications International Corporation (SAIC)
“COTS Very Small Computing Platforms - Security”
Duration: 1/1/2010 – 6/30/2011
Sole PI
Award Amount: \$99,415
- G2. National Science Foundation (NSF)
“SASSY: Self-Architecting Software Systems”
Duration: 06/15/2008 – 06/1/2011
Co-PIs: Daniel A. Menasce (GMU), Hassan Gomaa (GMU), and Joao P. Sousa (GMU)
Award Amount: \$479,996

- G1. US Army Topographic Engineering Center
 Duration: 12/20/2006 – 12/20/2010
 Co-PIs: Michael Hieb (GMU), Mark Pullen (GMU)
 Award Amount: \$133,187

6. PUBLICATIONS

JOURNAL ARTICLES

- J13. Hamid Bagheri, Alireza Sadeghi, Joshua Garcia, and Sam Malek. "COVERT: Compositional Analysis of Android Inter-App Security Vulnerabilities." *IEEE Transactions on Software Engineering (IEEE TSE)*, revision under review.
- J12. Eric Yuan, Naeem Esfahani, and Sam Malek. "A Systematic Survey of Self-Protecting Software Systems." *ACM Transactions on Autonomous and Adaptive Systems (ACM TAAS)*, Vol. 8, No. 4, January 2014.
- J11. Deshan Cooray, Ehsan Kouroshfar, Sam Malek, and Roshanak Roshandel. "Proactive Adaptation for Improving the Reliability of Mission-Critical, Embedded, and Mobile Software." *IEEE Transactions on Software Engineering (IEEE TSE)*, Vol. 39, No. 12, December 2013.
- J10. Naeem Esfahani, Ahmed Elkhodary, and Sam Malek. "A Learning-Based Framework for Engineering Feature-Oriented Self-Adaptive Software Systems." *IEEE Transactions on Software Engineering (IEEE TSE)*, Vol. 39, No. 11, November 2013.
- J9. Chris A. Mattmann, Nenad Medvidovic, Sam Malek, George Edwards, and Somo Banerjee. "A Middleware Platform for Providing Mobile and Embedded Computing Instruction to Software Engineering Students." *IEEE Transactions on Education (IEEE TE)*, Vol. 55, No. 3, pages 425-435, August 2012.
- J8. Naeem Esfahani, and Sam Malek. "Utilizing Architectural Styles to Enhance the Adaptation Support of Middleware Platforms." *Journal of Information and Software Technology (IST)*, Vol. 54, No. 7, pages 786-801, July 2012.
- J7. Danny Weyns, Sam Malek, and Jesper Andersson. "FORMS: Unifying Reference Model for Formal Specification of Distributed Self-Adaptive Systems." *ACM Transactions on Autonomous and Adaptive Systems (ACM TAAS) – Special Issue on Formal Methods for Pervasive, Self-Aware and Context-Aware Systems*, Vol. 7, No. 1, pages 1-61, April 2012.
- J6. Sam Malek, Nenad Medvidovic, and Marija Mikic-Rakic. "Improving a Distributed Software System's Quality of Service via Redeployment." *IEEE Transactions on Software Engineering (IEEE TSE)*, Vol. 38, No. 1, pages 73-100, January/February 2012.
- J5. Danny A. Menasce, Hassan Gomaa, Sam Malek, and Joao Pedro Sousa. "SASSY: A Framework for Self-Architecting Service Oriented Systems." *IEEE Software*, Vol. 28, No. 6, pages 78-85, November/December 2011.
- J4. Sam Malek, Harshini Ramnath Krishnan, and Jayalakshmi Srinivasan. "Enhancing Middleware Support for Architecture-Based Development through Compositional Weaving of Styles." *Journal of Systems and Software (JSS)*, Vol. 83, No. 12, pages 2513-2527, December 2010.
- J3. Sam Malek, George Edwards, Yuriy Brun, Hossein Tajalli, Joshua Garcia, Ivo Krka, Nenad Medvidovic, Marija Mikic-Rakic, Gaurav Sukhatme. "An Architecture-Driven Software Mobility

Framework.” *Journal of Systems and Software (JSS)*, special issue on Software Architecture and Mobility, Vol. 83, No. 6, pages 972-989, June 2010.

- J2. Sam Malek, Marija Mikic-Rakic, and Nenad Medvidovic. “A Style-Aware Architectural Middleware for Resource-Constrained, Distributed Systems.” *IEEE Transactions on Software Engineering (IEEE TSE)*, Vol. 31, No. 3, pages 256-272, March 2005.
- J1. Nenad Medvidovic, Marija Mikic-Rakic, Nikunj Mehta, and Sam Malek. “Software Architectural Support for Handheld Computing.” *IEEE Computer – Special Issue on Handheld Computing*, Vol. 36, No. 9, pages 66-73, September 2003.

CONFERENCE PUBLICATIONS

- C59. Hamid Bagheri, Eunsuk Kang, Sam Malek, and Daniel Jackson. “Detection of Design Flaws in Android Permission Protocol through Bounded Verification.” In *proceedings of the 20th International Symposium on Formal Methods (FM 2015)*, Oslo, Norway, June 2015. (26% acceptance rate)
- C58. Ehsan Kouroshfar, Mehdi Mirakhorli, Hamid Bagheri, Lu Xiao, Sam Malek, and Yuanfang Cai. “A Study on the Role of Software Architecture in the Evolution and Quality of Software.” In *proceedings of the 12th Working Conference on Mining Software Repositories (MSR 2015)*, Florence, Italy, May 2015. (30% acceptance rate)
- C57. Reyhaneh Jabbarvand, Alireza Sadeghi, Joshua Garcia, Sam Malek, and Paul Ammann. “EcoDroid: An Approach for Energy-Based Ranking of Android Apps.” In *proceedings of the 4th International Workshop on Green and Sustainable Software (GREENS 2015)*, Florence, Italy, May 2015.
- C56. Alireza Sadeghi, Hamid Bagheri, and Sam Malek. “Analysis of Android Inter-App Security Vulnerabilities Using COVERT.” In *proceedings of the 37th International Conference on Software Engineering (ICSE 2015), Demonstrations Track*, Florence, Italy, May 2015.
- C55. Riyadh Mahmood, Nariman Mirzaei, and Sam Malek. “EvoDroid: Segmented Evolutionary Testing of Android Apps.” In *proceedings of the 22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2014)*, Hong Kong, China, November 2014. (22% acceptance rate)
- C54. Sam Malek, Hamid Bagheri, and Alireza Sadeghi. “Automated Detection and Mitigation of Inter-Application Security Vulnerabilities in Android.” In *proceedings of the 2nd International Workshop on Software Development Lifecycle for Mobile (DeMobile 2014)*, Hong Kong, China, November 2014.
- C53. Eric Yuan, Naeem Esfahani, and Sam Malek. “Automated Mining of Software Component Interactions for Self-Adaptation.” In *proceedings of the 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014)*, Hyderabad, India, June 2014. (19% acceptance rate)
- C52. Alireza Sadeghi, Naeem Esfahani, and Sam Malek. “Mining the Categorized Software Repositories to Improve the Analysis of Security Vulnerabilities.” In *proceedings of the 17th International Conference on Fundamental Approaches to Software Engineering (FASE 2014)*, Grenoble, France, April 2014. (23% acceptance rate)
- C51. Eric Yuan, Sam Malek, Bradley Schmerl, David Garlan, and Jeff Gennari. “Architecture-Based Self-Protecting Software Systems.” In *proceedings of the 9th International ACM SIGSOFT Conference on Quality of Software Architectures (QoSA 2013)*, Vancouver, Canada, June 2013.

- C50. Naeem Esfahani, Sam Malek, Kaveh Razavi. "GuideArch: Guiding the Exploration of Architectural Solution Space under Uncertainty." In *proceedings of the 35th International Conference on Software Engineering (ICSE 2013)*, San Francisco, California, May 2013. (18% acceptance rate)
- C49. Kyle R. Canavera, Naeem Esfahani, and Sam Malek. "Mining the Execution History of a Software System to Infer the Best Time for its Adaptation." In *proceedings of the 20th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2012)*, Cary, North Carolina, November 2012. (17% acceptance rate)
- C48. Naeem Esfahani, Kaveh Razavi, Sam Malek. "Dealing with Uncertainty in Early Software Architecture." In *proceedings of the 20th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2012)*, New Ideas and Emerging Results track, Cary, North Carolina, November 2012. (20% acceptance rate)
- C47. Nariman Mirzaei, Sam Malek, Corina S. Păsăreanu, Naeem Esfahani, Riyadh Mahmood. "Testing Android Apps through Symbolic Execution." In *proceedings of the Java Pathfinder Workshop (JPF 2012)*, Cary, North Carolina, November 2012.
- C46. Riyadh Mahmood, Naeem Esfahani, Thabet Kacem, Nariman Mirzaei, Sam Malek, and Angelos Stavrou. "A Whitebox Approach for Automated Security Testing of Android Applications on the Cloud." In *proceedings of the 7th International Workshop on Automation of Software Test (AST 2012)*, Zurich, Switzerland, June 2012.
- C45. Sam Malek, Naeem Esfahani, Thabet Kacem, Riyadh Mahmood, Nariman Mirzaei, and Angelos Stavrou. "A Framework for Automated Security Testing of Android Applications on the Cloud." In *proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012)*, Washington, District of Columbia, June 2012.
- C44. Eric Yuan, and Sam Malek. "A Taxonomy and Survey of Self-Protecting Software Systems." In *proceedings of the 7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, Zurich, Switzerland, June 2012. (30% acceptance rate)
- C43. Danny Weyns, M. Usman Iftikhar, Sam Malek, and Jesper Andersson. "Claims and Supporting Evidence for Self-Adaptive Systems – A Literature Study." In *proceedings of the 7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, Zurich, Switzerland, June 2012. (30% acceptance rate)
- C42. Naeem Esfahani, Ehsan Kouroshfar, and Sam Malek. "Taming Uncertainty in Self-Adaptive Software." In *proceedings of the 8th joint meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2011)*, Szeged, Hungary, September 2011. (16% acceptance rate)
- C41. Pieter Vromant, Danny Weyns, Sam Malek, and Jesper Andersson. "On Interacting Control Loops in Self-Adaptive Systems." In *proceedings of the 6th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2011)*, Honolulu, Hawaii, May 2011. (27% acceptance rate)
- C40. Ahmed Elkhodary, Naeem Esfahani, and Sam Malek. "FUSION: A Framework for Engineering Self-Tuning Self-Adaptive Software Systems." In *proceedings of the 18th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2010)*, Santa Fe, New Mexico, November 2010. (20% acceptance rate)
- C39. Deshan Cooray, Sam Malek, Roshanak Roshandel, and David Kilgore. "RESISTing Reliability Degradation through Proactive Reconfiguration." In *proceedings of the 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010)*, Antwerp, Belgium, September 2010. (17% acceptance rate)

- C38. Naeem Esfahani, and Sam Malek. "Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms." In *proceedings of the 4th European Conference on Software Architectures (ECSA 2010)*, Copenhagen, Denmark, August 2010.
- C37. Deshan Cooray, Sam Malek, and Roshanak Roshandel. "Context-Driven Optimization of Mobile Service-Oriented Systems for Improving their Resilience." In *proceedings of the IEEE International Workshop on Engineering Mobile Service-Oriented Systems (EMSOS 2010)*, Miami, FL, July 2010.
- C36. Danny Weyns, Sam Malek, and Jesper Andersson. "FORMS: A Formal Reference Model for Self-Adaptation." In *proceedings of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C35. Daniel A. Menasce, Joao Pedro Sousa, Sam Malek, and Hassan Gomaa. "QoS Architectural Patterns for Self-Architecting Software Systems." In *proceedings of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C34. Naeem Esfahani, and Sam Malek. "Social Computing Networks: A New Paradigm for Engineering Pervasive Software Systems." In *proceedings of the 32nd International Conference on Software Engineering (ICSE 2010)*, New Ideas and Emerging Results Track, Cape Town, South Africa, May 2010. (25% acceptance rate)
- C33. Danny Weyns, Sam Malek, and Jesper Andersson. "On Decentralized Self-Adaptation: Lessons from the Trenches and Challenges for the Future." In *proceedings of the ICSE workshop on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2010)*, Cape Town, South Africa, May 2010.
- C32. Joao Pedro Sousa, Zeynep Zengin, and Sam Malek. "Towards Multi-Design of Situated Service-Oriented Systems." In *proceedings of the ICSE workshop on Principles of Engineering Service Oriented Systems (PESOS 2010)*, Cape Town, South Africa, May 2010.
- C31. Hassan Gomaa, Koji Hashimoto, Minseong Kim, Sam Malek, and Daniel A. Menasce. "Software Adaptation Patterns for Service-Oriented Architectures." In *proceedings of the 25th ACM Symposium on Applied Computing (SAC 2010)*, Dependable and Adaptive Distributed Systems (DADS) track, Sierre, Switzerland, March 2010. (30% acceptance rate)
- C30. Daniel A. Menasce, John M. Ewing, Hassan Gomaa, Sam Malek, and Joao P. Sousa. "A Framework for Utility-Based Service Oriented Design in SASSY." In *proceedings of the Joint WOSP/SIPEW International Conference on Performance Engineering (WOSP/SIPEW 2010)*, San Jose, California, January 2010. (25% acceptance rate)
- C29. Ahmed Elkhodary, Sam Malek, and Naeem Esfahani. "On the Role of Features in Analyzing the Architecture of Self-Adaptive Software Systems." In *proceedings of the 4th International Workshop on Models at Runtime (MRT 2009)*, Denver, Colorado, October 2009. (20% acceptance rate for full papers)
- C28. Naeem Esfahani, Sam Malek, Joao Pedro Sousa, Hassan Gomaa, and Daniel A. Menasce. "A Modeling Language for Activity-Oriented Composition of Service-Oriented Software Systems." In *proceedings of the ACM/IEEE 12th International Conference on Model Driven Engineering Languages and Systems (MODELS 2009)*, Denver, Colorado, October 2009. (16% acceptance rate)
- C27. Chiyoung Seo, George Edwards, Daniel Popescu, Sam Malek, and Nenad Medvidovic. "A Framework for Estimating the Energy Consumption Induced by a Distributed System's Architectural Style." In *proceedings of the ESEC/FSE workshop on Specification and Verification of Component-Based Systems (SAVCBS 2009)*, Amsterdam, Netherlands, August 2009.

- C26. Sam Malek, Roshanak Roshandel, David Kilgore, and Ibrahim Elhag. "Improving the Reliability of Mobile Software Systems through Continuous Analysis and Proactive Reconfiguration." In *proceedings of the International Conference on Software Engineering (ICSE 2009)*, New Ideas and Emerging Results Track, Vancouver, Canada, May 2009. (17% acceptance rate)
- C25. Jesper Anderson, Rogerio de Lemos, Sam Malek, and Danny Weyns. "Reflecting on Self-Adaptive Software Systems." In *proceedings of the ICSE 2009 Workshop on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2009)*, Vancouver, Canada, May 2009.
- C24. Sam Malek, Naeem Esfahani, Danny Menasce, Joao Sousa, and Hassan Gomaa. "Self-Architecting Software Systems (SASSY) from QoS-Annotated Activity Models." In *proceedings of the ICSE 2009 Workshop on Principles of Engineering Service-Oriented Systems (PESOS 2009)*, Vancouver, Canada, May 2009. (23% acceptance rate)
- C23. Chiyoung Seo, Sam Malek, and Nenad Medvidovic. "Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems." In *proceedings of the 11th International Symposium on Component Based Software Engineering (CBSE 2008)*, Karlsruhe, Germany, October 2008.
- C22. Sam Malek. "Dealing with the Crosscutting Structure of Software Architectural Styles." In *proceedings of the 32nd Annual IEEE International Computer Software and Applications Conference (COMPSAC 2008)*, Turku, Finland, July 2008. (20% acceptance rate)
- C21. Marija Mikic-Rakic, Sam Malek, and Nenad Medvidovic. "Architecture-Driven Software Mobility in Support of QoS Requirements." In *proceedings of the International Workshop on Software Architectures and Mobility (SAM 2008)*, Leipzig, Germany, May 2008.
- C20. Roshanak Roshandel, and Sam Malek. "Refining Reliability Estimation of Mobile Software Systems." In *proceedings of the International Workshop on Software Architectures and Mobility (SAM 2008)*, Leipzig, Germany, May 2008.
- C19. Chiyoung Seo, Sam Malek, and Nenad Medvidovic. "Estimating the Energy Consumption in Pervasive Java-Based Systems." In *proceedings of the 6th IEEE International Conference on Pervasive Computing and Communications (PerCom 2008)*, Hong Kong, March 2008.
- C18. Sam Malek. "Effective Realization of Software Architectural Styles with Aspects." In *proceedings of the 7th Working IEEE/IFIP Conference on Software Architecture (WICSA 2008)*, Vancouver, BC, Canada, February 2008.
- C17. Chiyoung Seo, George Edwards, Sam Malek, and Nenad Medvidovic. "A Framework for Estimating the Impact of a Distributed Software System's Architectural Style on its Energy Consumption." In *proceedings of the 7th Working IEEE/IFIP Conference on Software Architecture (WICSA 2008)*, Vancouver, BC, Canada, February 2008.
- C16. George Edwards, Chiyoung Seo, Daniel Popescu, Sam Malek, and Nenad Medvidovic. "Self-* Software Architectures and Component Middleware in Pervasive Environments." In *proceedings of the 5th International Workshop on Middleware for Pervasive and Ad-Hoc Computing (MPAC 2007)*, Newport Beach, California, November 2007.
- C15. Chiyoung Seo, Sam Malek, and Nenad Medvidovic. "An Energy Consumption Framework for Distributed Java-Based Systems." In *proceedings of the 22nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2007)*, Atlanta, Georgia, November 2007.
- C14. Nenad Medvidovic, and Sam Malek. "Software Deployment Architecture and Quality-of-Service in Pervasive Environments." In *proceedings of the International Workshop on the Engineering of Software Services for Pervasive Environments (ESSPE 2007)*, Dubrovnik, Croatia, September 2007.

- C13. Sam Malek, Chiyounng Seo, Sharmila Ravula, Brad Petrus, and Nenad Medvidovic. "Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support." In *proceedings of the 29th International Conference on Software Engineering (ICSE 2007)*, Minneapolis, Minnesota, May 2007. (25% acceptance rate)
- C12. Chiyounng Seo, Sam Malek, George Edwards, Nenad Medvidovic, Brad Petrus, and Sharmila Ravula. "Exploring the Role of Software Architecture in Dynamic and Fault Tolerant Pervasive Systems." In *proceedings of the Workshop on Software Engineering of Pervasive Computing Applications, Systems and Environments (SEPCASE 07)*, Minneapolis, Minnesota, May 2007.
- C11. George Edwards, Sam Malek, and Nenad Medvidovic. "Scenario-Driven Dynamic Analysis of Distributed Architectures." In *proceedings of the 10th International Conference on Fundamental Approaches to Software Engineering (FASE 2007)*, Braga, Portugal, March 2007. (15% acceptance rate)
- C10. Sam Malek, Chiyounng Seo, and Nenad Medvidovic. "Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment." In *proceedings of the 6th International Workshop on Software Engineering and Middleware (SEM 2006)*, Portland, Oregon, November 2006.
- C9. Sam Malek. "A User-Centric Framework for Improving a Distributed Software System's Deployment Architecture." In *proceedings of the doctoral track at the 14th ACM SIGSOFT Symposium on Foundation of Software Engineering (FSE 2006)*, Portland, Oregon, November 2006.
- C8. Sam Malek, Chiyounng Seo, Sharmila Ravula, Brad Petrus, and Nenad Medvidovic. "Providing Middleware-Level Facilities to Support Architecture-Based Development of Software Systems in Pervasive Environments." In *proceedings of the 4th International Workshop on Middleware for Pervasive and Ad-Hoc Computing (MPAC 2006)*, Melbourne, Australia, November 2006.
- C7. Sam Malek, Marija Mikic-Rakic, and Nenad Medvidovic. "A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems." In *proceedings of the 3rd International Conference on Component Deployment (CD 2005)*, Grenoble, France, November 2005.
- C6. Marija Mikic-Rakic, Sam Malek, and Nenad Medvidovic. "Improving Availability in Large, Distributed, Component-Based Systems via Redeployment." In *proceedings of the 3rd International Conference on Component Deployment (CD 2005)*, Grenoble, France, November 2005.
- C5. Christian Mattmann, Sam Malek, Nels Beckman, Marija Mikic-Rakic, Nenad Medvidovic, and Daniel Crichton. "GLIDE: A Grid-based Lightweight Infrastructure for Data-intensive Environments." In *proceedings of the European Grid Conference (EGC 2005)*, Amsterdam, Netherlands, February 2005.
- C4. Sam Malek, Marija Mikic-Rakic, Nenad Medvidovic. "An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures." In *proceedings of the ACM SIGSOFT Workshop on Self-Managed Systems (WOSS 2004)*, Newport Beach, California, October 2004.
- C3. Marija Mikic-Rakic, Sam Malek, Nels Beckman, and Nenad Medvidovic. "A Tailorable Environment for Assessing the Quality of Deployment Architectures in Highly Distributed Settings." In *proceedings of the 2nd International Conference on Component Deployment (CD 2004)*, Edinburgh, Scotland, May 2004.
- C2. Marija Mikic-Rakic, Sam Malek, Nels Beckman, and Nenad Medvidovic. "Improving Availability of Distributed Event-Based Systems via Run-Time Monitoring and Analysis." In *proceedings of the*

Twin Workshop on Architecting Dependable Systems (WADS 2004), Edinburgh, UK, May 2004, and Florence, Italy, June 2004.

- C1. Nenad Medvidovic, Sam Malek, and Marija Mikic-Rakic. "Software Architectures and Embedded Systems." In *proceedings of the Monterey Workshop on Software Engineering for Embedded Systems*, Chicago, Illinois, September 24-26, 2003.

BOOK CHAPTERS

- B6. Naeem Esfahani, and Sam Malek. "Uncertainty in Self-Adaptive Software Systems." In ***Software Engineering for Self-Adaptive Systems 2***, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2013.
- B5. Danny Weyns, Bradley Schmerl, Vincenzo Grassi, Sam Malek, Raffaella Mirandola, Christian Prehofer, Jochen Wuttke, Jesper Andersson, Holger Giese, and Karl Goschka. "On Patterns for Decentralized Control in Self-Adaptive Systems." In ***Software Engineering for Self-Adaptive Systems 2***, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2012.
- B4. Rogerio de Lemos, Holger Giese, Hausi Muller, Mary Shaw, Jesper Andersson, Luciano Baresi, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cikir, Ron Desmarais, Schahram Dustdar, Gregor Engels, Kurt Geihs, Karl M. Goeschka, Alessandra Gorla, Vincenzo Grassi, Poala Inverardi, Gabor Karsai, Jeff Kramer, Marin Litoiu, Antonia Lopes, Jeff Magee, Sam Malek, Serge Mankovskii, Raffaella Mirandola, John Mylopoulos, Oscar Nierstrasz, Mauro Pezze, Christian Prehofer, Wilhelm Schafer, Wilhelm Schlichting, Bradley Schmerl, Dennis B. Smith, Joao P. Sousa, Gabriel Tamura, Ladan Tahvildari, Norha M. Villegas, Thomas Vogel, Danny Weyns, Kenny Wong, Jochen Wuttke. "Software Engineering for Self-Adaptive Systems: A second Research Roadmap." In ***Software Engineering for Self-Adaptive Systems 2***, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2012.
- B3. Jesper Andersson, Rogerio de Lemos, Sam Malek, and Danny Weyns. "Modeling Dimensions of Self-Adaptive Software Systems." In ***Software Engineering for Self-Adaptive Systems***, Editors B. H. C. Cheng, R. de Lemos, H. Giese, P. Inverardi, and J. Magee, Lecture Notes in Computer Science Hot Topics, Springer, 2009.
- B2. Betty H. C. Cheng, Rogério de Lemos, Holger Giese, Paola Inverardi, Jeff Magee, Jesper Andersson, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cukic, Giovanna Di Marzo Serugendo, Schahram Dustdar, Anthony Finkelstein, Cristina Gacek, Kurt Geihs, Vincenzo Grassi, Gabor Karsai, Holger M. Kienle, Jeff Kramer, Marin Litoiu, Sam Malek, Raffaella Mirandola, Hausi A. Müller, Sooyong Park, Mary Shaw, Matthias Tichy, Massimo Tivoli, Danny Weyns, Jon Whittle. "Software Engineering for Self-Adaptive Systems: A Research Roadmap." In ***Software Engineering for Self-Adaptive Systems***, Editors B. H. C. Cheng, R. de Lemos, H. Giese, P. Inverardi, and J. Magee, Lecture Notes in Computer Science, Springer, 2009.
- B1. Sam Malek, Nels Beckman, Marija Mikic-Rakic, and Nenad Medvidovic. "A Framework for Ensuring and Improving Dependability in Highly Distributed Systems." In ***Architecting Dependable Systems III***, Editors R. de Lemos, C. Gacek, and A. Romanowski, Springer Verlag, October 2005.

EDITED BOOKS AND JOURNALS

- D2. Danny Weyns, Sam Malek, Jesper Andersson, and Bradley Schmerl. "Introduction to the Special Issue on the State of the Art in Engineering Self-Adaptive Software Systems." *Journal of Systems and Software (JSS)*, Vol. 85, No. 12, pages 2675-2677, December 2012.
- D1. Danny Weyns, Sam Malek, Rogerio de Lemos, and Jesper Andersson, eds. "Self-Organizing Architectures." *Lecture Notes in Computer Science (LNCS)*, Springer Verlag, Vol. 6090, 300 pages, September 2009. ISBN: 978-3-642-14411-0

DISSERTATION

Sam Malek. "*A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture.*" *PhD thesis*. Computer Science Department, University of Southern California, 2007.

7. TEACHING

- **SWE 699 / CS 795 / IT 821 – Software Architecture Research Issues**
 Terms taught: Spring 2010
 Graduate-level elective course for M.S. and Ph.D. level students
 George Mason University
 Syllabus available at: http://cs.gmu.edu/~smalek/classes/spring10_cs795/cs795.html
- **SWE 699 / CS 795 / IT 821 – Service-Oriented Architecture**
 Terms taught: Spring 2009, Fall 2011
 Graduate-level elective course for M.S. and Ph.D. level students
 George Mason University
 Syllabus available at: <http://cs.gmu.edu/~smalek/smalek/SWE722.html>
- **SWE 622 – Distributed Software Engineering**
 Terms taught: Fall 2007, Spring 2008, Fall 2008, Fall 2009, Spring 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014
 Graduate-level core course for the M.S. degree in Software Engineering
 George Mason University
 Syllabus available at: <http://cs.gmu.edu/~smalek/SWE622.html>
- **SWE 443 – Software Architectures**
 Terms taught: Spring 2013
 Undergraduate elective course for BS CS and BS ACS students
 George Mason University
 Syllabus available at: <http://cs.gmu.edu/~smalek/SWE443.html>
- **CS 589 – Software Engineering for Embedded Systems**
 Teaching Assistant, Fall 2003; Guest Lecturer, Fall 2004-2006
 University of Southern California
- **CS 377 – Introduction to Software Engineering**
 Guest Lecturer, Fall 2006
 University of Southern California

8. SUPERVISED STUDENTS

POSTDOCTORAL ASSOCIATES

CURRENT

- Hamid Bagheri
Sept 2013 – present
- Joshua Garcia
July 2014 – present

ALUMNI

- Yonghee Shin
August 2012 – May 2013

DOCTORAL DISSERTATION COMMITTEE CHAIR

CURRENT

- Kyle Canavera
Status: passed Quals
- Ehsan Kouroshfar
Status: passed Thesis Proposal
Dissertation title: Assessing the Impact of Architecture on Defects from Evolutionary History of Software
- Narmian Mirzaei
Status: passed Thesis Proposal
- Alireza Sadeghi
Status: passed Quals
- Eric Yuan
Status: passed Thesis Proposal
- Reyhaneh Jabarvand
Status: passed Quals
- Mahmoud Hammad
Status: passed Quals

ALUMNI

- Ahmed Elkhodary
Graduation date: December 2011
Dissertation title: A Learning-Based Approach for Engineering Feature-Oriented Self-Adaptive Software Systems
- Naeem Esfahani
Graduation date: August 2014
Dissertation title: Management of Uncertainty in Self-Adaptive Software

- Riyadh Mahmood
Graduation date: May 2015
Dissertation title: An Evolutionary Approach for System Testing of Android Applications

MASTERS DISSERTATION COMMITTEE CHAIR**ALUMNI**

- Deshan A. Cooray
Graduation date: August 2010
Dissertation title: Resisting Reliability Degradation through Proactive Reconfiguration

DOCTORAL DISSERTATION COMMITTEE MEMBER**CURRENT**

- | | | |
|--------------------|-----------------------|-----|
| • Sunitha Thummala | Advisor: Jeff Offutt | GMU |
| • Lin Deng | Advisor: Jeff Offutt | GMU |
| • Emad Albassam | Advisor: Hassan Gomaa | GMU |
| • Rowland Pitts | Advisor: Hassan Gomaa | GMU |

ALUMNI

- | | | | |
|-----------------------|---|--------------------|------|
| • Mohammad Abu-Matar | Advisor: Hassan Gomaa | GMU | 2011 |
| • Julie Street, 2011 | Advisor: Hassan Gomaa | GMU | 2011 |
| • Zhaohui Wang | Advisor: Angelos Stavrou | GMU | 2012 |
| • Sander van der Burg | Advisor: Arie van Deursen
and Eelco Visser | Delft University | 2013 |
| • Antti Evesti | Advisor: Jukka Riekkii | University of Oulu | 2013 |
| • Ahmed Abu Jbara | Advisor: Alexander Levis | GMU | 2013 |
| • Nan Li | Advisor: Jeff Offutt | GMU | 2014 |
| • Quyen L. Nguyen | Advisor: Arun Sood | GMU | 2014 |
| • John D. McDowall | Advisor: Larry Kerschberg | GMU | 2014 |
| • Jing Guan | Advisor: Jeff Offutt | GMU | 2015 |

MASTERS DISSERTATION COMMITTEE MEMBER**ALUMNI**

- | | | | |
|-----------------------|--------------------------|-----|------|
| • Muhammad Faraz Rafi | Advisor: Alexander Levis | GMU | 2010 |
| • Koji Hashimoto | Advisor: Hassan Gomaa | GMU | 2010 |
| • Xiang Shen | Advisor: Joao Sousa | GMU | 2013 |

9. FORMAL PRESENTATIONS

- *Automated Detection of Android Inter-Application Vulnerabilities*. DHS SWAMP/SQA PI meeting, Atlanta, May 2015.
- *A Tool for Automated Detection of Inter-Application Security Vulnerabilities in Android*. National Security Agency, College Park, Maryland, March 2015.
- *Automated Analysis and Testing of Mobile Software*. University of California Irvine. Computer Science Department. March 2015.
- *Automated Analysis and Testing of Mobile Software*. University of Southern California. Computer Science Department. February 2015.
- *Automated Analysis and Testing of Mobile Software*. College of William and Mary. Computer Science Department. February 2015.
- *Automated Analysis and Testing of Mobile Software*. George Mason University. Computer Science Department. February 2015.
- *Invited Talk — Automated Detection and Mitigation of Inter-Application Security Vulnerabilities in Android*. 2nd International Workshop on Software Development Lifecycle for Mobile. Hong Kong, China, November 2014.
- *Automated Mining of Software Component Interactions for Self-Adaptation*. 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014). Hyderabad, India, June 2014.
- *Keynote — Toward the Making of Software that Learns to Manage Itself*. 27th Brazilian Symposium on Software Engineering (SBES 2013), Brasilia, Brazil, October 2013.
- *Invited Speaker — Automated Security Testing of Mobile Applications*. FedMobileCamp hosted by NGA/InnoVision, Reston, VA, August 2013.
- *Invited Talk — A Framework for Improving a Distributed Software System's Deployment Architecture*. Delft University of Technology, Delft, Netherlands, June 2013.
- *Keynote — The Secret Sauce for Succeeding in your PhD Research and Beyond*. 35th International Conference on Software Engineering (ICSE 2013), Doctoral Symposium track, San Francisco, CA, May 2013.
- *Automated Security Testing and Analysis of Smartphone Applications*. National Security Agency, George Mason University, Fairfax, VA, August 2012
- *Automated Security Testing of Android Applications for the Military App Store*. DARPA Computer Science Study Panel, Arlington, VA, April 2012
- *Invited Talk — Guided Exploration of the Architectural Solution Space in the Face of Uncertainty*. Lockheed Martin Architects Workshop, Littleton, Colorado, August 2011
- *Taming Uncertainty in Self-Adaptive Software*. 8th joint meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2011), Szeged, Hungary, September 2011
- *Invited Talk — Engineering Self-Adaptive Software Systems*. Virginia Polytechnic Institute and State University, Falls Church, VA, February 2011

- *Invited Talk — Engineering Self-Adaptive Software Systems*. Sharif University, Tehran, Iran, December 2010
- *FUSION: A Framework for Engineering Self-Tuning Self-Adaptive Software Systems*. 18th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2010), Santa Fe, NM, November 2010
- *RESISTing Reliability Degradation through Proactive Reconfiguration*. 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010), Antwerp, Belgium, September 2010
- *Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms*. 4th European Conference on Software Architectures (ECSA 2010), Copenhagen, Denmark, August 2010
- *Context-Driven Optimization of Mobile Service-Oriented Systems for Improving their Resilience*. IEEE International Workshop on Engineering Mobile Service-Oriented Systems (EMSOS 2010), Miami, FL, July 2010
- *Social Computing Networks: A New Paradigm for Engineering Pervasive Software Systems*. 32nd International Conference on Software Engineering (ICSE 2010), New Ideas and Emerging Results Track, Cape Town, South Africa, May 2010
- *Self-Architecting Software Systems (SASSY) from QoS-Annotated Activity Models*. International Workshop on Principles of Engineering Service Oriented Systems (PESOS 2009), Vancouver, Canada, May 2009
- *Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems*. International Symposium on Component Based Software Engineering (CBSE 2008), Karlsruhe, Germany, October 2008
- *Dealing with the Crosscutting Structure of Software Architectural Styles*. IEEE International Computer Software and Applications Conference (COMPSAC), Turku, Finland, July 2008
- *Architecture-Driven Software Mobility in Support of QoS Requirements*. International Workshop on Software Architectures and Mobility (SAM), Leipzig, Germany, May 2008
- *Effective Realization of Software Architectural Styles with Aspects*. Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008
- *A Framework for Estimating the Impact of a Distributed Software System's Architectural Style on its Energy Consumption*. Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008
- *Architecture-Driven Software Mobility in Support of QoS Requirements*. Dagstuhl Seminar 08031 on Software Engineering for Self-Adaptive Systems, Saarbrücken, Germany, January 2008
- *Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support*. International Conference on Software Engineering (ICSE 2007), Minneapolis, Minnesota, May 2007
- *A User-Centric Framework for Improving a Distributed Software System's Deployment Architecture*. Doctoral track of the Symposium on Foundations of Software Engineering (FSE 2006), Portland, Oregon, November 2006
- *Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment*. International Workshop on Software Engineering and Middleware (SEM 2006), Portland, Oregon, November 2006
- *A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems*. International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005

- *Improving Availability in Large, Distributed, Component-Based Systems via Redeployment.* International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- *A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture.* USC Center for Software Engineering Annual Research Review, Los Angeles, California, March 2005
- *An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures.* ACM SIGSOFT Workshop on Self-Managed Systems (WOSS 2004), Newport Beach, California, October 2004
- *A Tailorable Environment for Assessing the Quality of Deployment Architectures in Highly Distributed Settings.* Second International Conference on Component Deployment (CD 2004), Edinburgh, Scotland, May 2004
- *Improving Availability of Distributed Event-Based Systems via Run-Time Monitoring and Analysis.* Workshop on Architecting Dependable Systems (WADS 2004) held in conjunction with the International Conference on Software Engineering (ICSE 2004), Edinburgh, Scotland, May 2004
- *Improving System Availability in Distributed Environments.* USC Center for Software Engineering Annual Research Review, Los Angeles, CA, March 2004

10. PROFESSIONAL SERVICE

JOURNAL, CONFERENCE, AND WORKSHOP ORGANIZATION

- Associate Editor, IEEE Transactions on Software Engineering
Feb/2014 – present
- Associate Editor, Springer Computing Journal
Feb/2011 – present
- Program Chair, 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2016), Austin, Texas, May 2016.
- Tutorial Co-Chair, 10th Joint Meeting of European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2015), Bergamo, Italy, August 2015.
- Proceedings Chair, 22nd International Symposium on the Foundations of Software Engineering (FSE 2014), Hong Kong, China, November 2014
- Tutorial Chair, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- Program Chair, 4th ACM SIGSOFT International Symposium on Architecting Critical Systems (ISARCS 2013), Vancouver, Canada, June 2013
- Internet Chair, 35th International Conference on Software Engineering (ICSE 2013), San Francisco, California, May 2013
- Publicity Chair, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- Workshop Chair, Joint 10th Working IEEE/IFIP Conference on Software Architecture (WICSA 2012) and 6th European Conference on Software Architecture (ECSA 2012), Helsinki, Finland, August 2012

- Publicity Chair, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- Posters Chair, 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, Hawaii, May 21-28, 2011
- Co-editor, special issue of the Journal of Systems and Software on “State of the Art in Self-Adaptive Software Systems”, tentative publication date of December 2011
- North America Regional Editor, International Journal of Software Architecture, 2010-2014
- Co-Organizer, ICAC International Workshop on Self-Organizing Architectures (SOAR 2010), Cambridge, UK, June 7, 2010
- Co-editor, “Self-Organizing Architectures”, Lecture Notes in Computer Science, Springer Verlag, vol. 6090, 300 pages, September 2009, ISBN: 978-3-642-14411-0
- Co-Organizer, WICSA/ECSA International Workshop on Self-Organizing Architectures (SOAR 2009), Cambridge, UK, Sep 14, 2009
- GMU Software Engineering Seminar Series, 2007- present
<http://cs.gmu.edu/~smalek/seminar.html>

PROGRAM COMMITTEE AND PANEL MEMBERSHIP

- Program Committee Member, 38th International Conference on Software Engineering (ICSE 2016), Workshop Proposals, Austin, Texas, May 2016.
- Program Committee Member, 3rd International Workshop on Software Development Lifecycle for Mobile (DeMobile 2015), Bergamo, Italy, August 2015.
- Program Committee Member, 9th European Conference on Software Architecture (ECSA 2015), Dubrovnik, Croatia, September 2015.
- Program Committee Member, 9th IEEE International Conference on Self-Adaptive and Self-Organizing Systems, Cambridge, MA, September 2015.
- Program Committee Member, 19th International Software Product Line Conference (SPLC 2015): New Directions in Systems and Software Product Line Engineering, Nashville, TN, July 2015.
- Program Committee Member, Symposium and Bootcamp on the Science of Security (HotSoS 2015), Urbana-Champaign, IL, April 2015.
- Program Committee Member, 37th International Conference on Software Engineering (ICSE 2015), Florence, Italy, May 2015
- Program Committee Member, 12th Working IEEE/IFIP Conference on Software Architecture (WICSA 2015), Montreal, Canada, May 2015
- Program Committee Member, 10th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2015), Florence, Italy, May 2015
- Program Committee Member, 9th International Workshop on Models at Runtime (MRT 2014), Valencia, Spain, September 2014.
- Program Committee Member, 5th Testing Techniques and Experimentation Benchmarks for Event-Driven Software (TESTBEDS 2014), Vasteras, Sweden, September 2014.

- Program Committee Member, 8th European Conference on Software Architecture (ECSA 2014), Vienna, Austria, August 2014
- Program Committee Member, IEEE 2nd International Workshop on Engineering Mobile Service Oriented Systems (EMSOS 2014), Anchorage, AL, June 2014.
- Program Committee Member, 4th International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2014), Hyderabad, India, June 2014.
- Program Committee Member, 2nd International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2014), Hyderabad, India, June 2014.
- Program Committee Member, 36th International Conference on Software Engineering (ICSE 2014), Hyderabad, India, June 2014
- Program committee Member, 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014), Hyderabad, India, June 2014
- Program Committee Member, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- Program Committee Member, Workshop on Architecting Mobile-Enabled Systems (AMeS 2014), Sydney, Australia, April 2014.
- Program Committee Member, Coordination Models, Languages and Applications track, 29th ACM Symposium on Applied Computing (SAC 2014), Gyeongju, Korea, March 2014.
- NSF Panel Member, Secure and Trustworthy Computing, Arlington, VA, March 2014
- Panelist, American Association for the Advancement of Science (AAAS), Maine Technology Institute Development Loan Program, August 2013
- Program Committee Member, 7th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2013), Philadelphia, USA, September 2013
- Program Committee Member, International Workshop on Software Engineering for Systems-of-Systems (SESoS 2013), Montpellier, France, July 2013
- Program Committee Member, 7th European Conference on Software Architecture (ECSA 2013), Montpellier, France, July 2013
- Program Committee Member, 3rd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), Rio de Janeiro, Brazil, July 2013.
- Program Committee Member, International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2013), San Francisco, CA, May 2013
- Program Committee Member, 4th International Workshop on Software Engineering for Sensor Network Applications (SESENA 2013), San Francisco, CA, May 2013
- Program Committee Member, 2nd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), San Francisco, CA, May 2013.
- NSF Panel Member, Computing and Communication Foundations, Arlington, VA, January 2013
- Program Committee Member, Coordination Models, Languages and Applications track, 28th ACM Symposium on Applied Computing (SAC 2013), Coimbra, Portugal, January 2013.
- Program Committee Member, 1st International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2012), Chicago, Illinois, September 2012

- Program Committee Member, 1st International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS 2012), Lyon, France, September 2012
- Program Committee Member, 20th International Symposium on the Foundations of Software Engineering (FSE 2012), New Ideas and Emerging Results Track, Research Triangle Park, North Carolina, November 2012
- Program Committee Member, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- Program Committee Member, Joint 10th Working IEEE/IFIP Conference on Software Architecture (WICSA 2012) and 6th European Conference on Software Architecture (ECSA 2012), Helsinki, Finland, August 2012
- Program Committee Member, Workshop on Architectures and Platforms for Knowledge Discovery from Data, Helsinki, Finland, August 2012
- Program Committee Member, 15th International ACM SIGSOFT Symposium on Component Based Software Engineering (CBSE 2012), Bertinoro, Italy, June 2012
- Program Committee Member, 2nd Workshop on Developing Tools as Plug-ins (TOPI 2012), Zurich, Switzerland, June 2012
- Program Committee Member, 34th International Conference on Software Engineering (ICSE 2012), New Ideas and Emerging Results Track, Zurich, Switzerland, June 2012
- Program Committee Member, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- Program Committee Member, 25th Brazilian Symposium on Software Engineering (SBES), São Paulo, Brazil, September 26-30 2011
- NSF Panel Member, Computer Networks and Systems core, Arlington, VA, March 2011
- Program Committee Member, 5th European Conference on Software Architecture (ECSA 2010), Essen, Germany, September 13-16 2011
- Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), ACM Student Research Competition, Honolulu, Hawaii, May 21-28 2011
- Program Committee Member, 1st International Workshop on Engineering Mobile Service Oriented Systems (EMSOS), Miami, Florida, July 5 2010
- Program Committee Member, 4th European Conference on Software Architecture (ECSA 2010), Copenhagen, Denmark, August 23-26, 2010
- Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), Technical/Research Track, Honolulu, Hawaii, May 21-28, 2011
- Program Committee Member, 3rd IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2009), San Francisco, CA, September 14-18, 2009
- NSF Panel Member, Cyber Physical Systems, Arlington, VA, May 2009
- Program Committee Member, International Workshop on Software Architectures and Mobility (SAM 2009), Vancouver, Canada, May 2009
- Program Committee Member, Special Session on Software Architecture for Pervasive Systems (SAPS), 34th Euromicro Conference in Parma, Italy, September 3-5, 2008

- Program Committee Member, International Conference on Software Engineering Research and Practice (SERP'06), Las Vegas, Nevada, June 2006
- Program Committee Member, ISR Graduate Student Research Symposium, Irvine, California, June 2005
- Program Committee Member, 39th Hawaiian International Conference on System Sciences, Kauai, Hawaii, January 2006

REFeree AND REVIEWER SERVICE

- Journal of Computer Security, 2014
- Elsevier Journal of Pervasive and Mobile Computing, 2014
- Journal of Computer Science and Technology, 2012
- ACM Transactions on Autonomous and Adaptive Systems, 2010, 2013, 2014
- International Journal of Software and Systems Modeling, 2010
- Journal of Empirical Software Engineering, 2010
- IEEE Computer, 2009
- Journal of Systems and Software, 2009, 2010, 2011, 2012
- ACM Transactions on Software Engineering and Methodology, 2008, 2011, 2012, 2013
- European Journal of Information Systems, 2008
- Enterprise Information Systems, 2008
- ACM Computing Surveys, 2007, 2008, 2009
- International Software Technology Journal, 2007, 2010
- IEEE Transactions on Software Engineering, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014
- IET Software, 2007, 2008, 2009
- IEEE Software, 2006, 2007, 2008
- International Working Conference on Software Architecture, outside reviewer, 2007
- International Working Conference on Component Deployment, outside reviewer, 2005
- International Workshop on Software Engineering and Middleware, outside reviewer, 2005
- International Symposium on Component-based Software Engineering, outside reviewer, 2004 - 2006
- Twin Workshops on Architecting Dependable Systems (WADS), outside reviewer, May 2004
- ACM SISGSOFT Workshop on Self-Managed Systems (WOSS), outside reviewer, October 2004

11. UNIVERSITY SERVICE

- Committee member, Faculty Recruitment, Computer Science Department, GMU
Spring 2013, Spring 2015

- Committee member, PhD Admission, Computer Science Department, GMU
2012 – present
- Coordinator, Software Engineering Seminar Series, Computer Science Department, GMU
Spring 2008 – present
- MS-SWE Admissions & Policy, Computer Science Department, GMU
Fall 2007 – present

12. PROFESSIONAL ASSOCIATIONS

- Association for Computing Machinery (ACM)
- ACM Special Interest Group on Software Engineering (SIGSOFT)
- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Computer Society

13. CONSULTING

- March 2011 – Present Institute for Defense Analyses
- June 2013 – Present Quandary Peak Research